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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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MAIL DATE 10/15/2008		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/537,598

**Applicant(s)**LINNARTZ, JOHAN PAUL MARIE  
GERARD**Examiner**

NADER BOLOURCHI

**Art Unit**

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2008 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Remarks*

1. Applicant's amendment dated 6/26/2008 is entered.
2. Drawings stand objected.
3. Specification stands objected.
4. Claim objection is withdrawn.
5. Claims stand rejected under 35 USC § 112.
6. Claims stand rejected under 35 USC § 102.

### *Response to Arguments*

7. The amendment filed 6/26/2008 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: "directly coupled" in line 4 of claim 1 and "directly exchanging" in line 7 of claim 8.

Applicant is required to cancel the new matter in the reply to this Office Action.

8. Examiner also notes the following:
  - Term "coupled" means: a. to join or associate by means of a coupler; b. to bring (two electric circuits or circuit components) close enough to permit an exchange

of electromagnetic energy. (see <http://dictionary.reference.com/browse/coupled>; emphasis added):

- Applicant has utilized the term "coupled" in the title and throughout the disclosure as originally filed, which is a preferred broad language used in claim drafting, as it compares to the term "connected", which means "To join or fasten together" (see <http://dictionary.reference.com/browse/connected>)
- Term "Joined" means "directly connected" with no intervening material (see U.S. Court of Appeals, Federal Circuit: *Genentech Inc. v. Chiron Corp.*, 42 USPQ2d 1608 (Fed. Cir. 1997); emphasis added):

Second, the district court agreed with Chiron that the only interpretation of the word "joined" required that the two elements to be joined must be directly connected with no intervening material. *Id.* at \*5. The district court explained that this interpretation does no violence to the open ended nature of the claim resulting from the use of the term "comprising" or the phrase "in proper reading frame." The district court interpreted "comprising" to permit additional material before and after the two required elements, but not in between the two elements that are joined. *Id.* The district court found that the phrase "in proper reading frame" was not rendered superfluous by requiring the elements to be joined directly because the second element when directly connected is not necessarily in proper reading frame with the first element. For instance, if the second element were connected in reverse orientation or the two elements had overlapping codons, the district court asserts that the two elements would be directly connected, but not in proper reading frame. *Id.* Based on this reasoning, the district court affirmed the award of priority to Chiron without reaching the utility issue. Genentech appeals this decision of the district court. We reverse.  
C.

- MPEP recites (emphasis added):

2173.05(g) [R-3] Functional Limitations

A functional limitation is an attempt to define something by what it does, rather than by what it is (e.g., as evidenced by its specific structure or specific ingredients). There is nothing inherently wrong with defining some part of an invention in functional terms.

Functional language does not, in and of itself, render a claim improper. In re Swinehart, 439 F.2d 210, 169 USPQ 226 (CCPA 1971).

A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. A functional limitation is often used in association with an element, ingredient, or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step. >In *Innova /Pure Water Inc. v. Safari Water Filtration Sys. Inc.*, 381 F.3d 1111, 1117-20, 72 USPQ2d 1001, 1006-08 (Fed. Cir. 2004), the court noted that the claim term "operatively connected" is "a

general descriptive claim term frequently used in patent drafting to reflect a functional relationship between claimed components," that is, the term "means the claimed components must be connected in a way to perform a designated function." "In the absence of modifiers, general descriptive terms are typically construed as having their full meaning." Id. at 1118, 72 USPQ2d at 1006. In the patent claim at issue, "subject to any clear and unmistakable disavowal of claim scope, the term operatively connected" takes the full breath of its ordinary meaning, i.e., said tube [is] operatively connected to said cap' when the tube and cap are arranged in a manner capable of performing the function of filtering." Id. at 1120, 72 USPQ2d at 1008.<

Based on the above explanation, for the propose of art rejection and to respond to the Applicant argument, Examiner will interpret the phrase "directly coupled" as "operatively connected" as discussed in MPEP above, and interpret the phrase "directly exchanged" as "operatively exchanged", in order "to perform the designated function", which are in accordance with the Applicant disclosure.

9. Applicant's arguments filed 6/26/2008 have been fully considered but they are not persuasive.

10. Applicant contends (emphasis added):

By means of the present amendment, claims 1-9 have been amended for non-statutory reasons, such as for better form including beginning the dependent claims with 'The' instead of 'A', and changing "characterized in that" to --wherein--. Such amendments to claims 1-9 were not made in order to address issues of patentability and Applicant respectfully reserves all rights under the Doctrine of Equivalents.

Examiner respectfully notes (see MPEP 2186; emphasis added):

**2186 Relationship to the Doctrine of Equivalents**

The doctrine of equivalents arises in the context of an infringement action. If an accused product or process does not literally infringe a patented invention, the accused product or process may be found to infringe under the doctrine of equivalents. The essential objective inquiry is: "Does the accused product or process contain elements identical or equivalent to each claimed element of the patented invention?" *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, 117 S. Ct. 1040, 41 USPQ2d 1865, 1875 (1997). In determining equivalence, "[a]n analysis of the role played by each element in the context of the specific patent claim will thus inform the inquiry as to whether a substitute element matches the function, way, and result of the claimed element, or whether the substitute plays a role substantially different from the claimed element." 41 USPQ2d at 1875.

Therefore, while Examiner acknowledges the Applicant's effort to improve the Form, however remains unclear about how this effort relates to the Doctrine of Equivalent and about the rights that Applicant seeks to reserve, in response to the office action mailed on 3/26/2008.

11. Applicant properly notes that (emphasis added):

The Office Action indicates that a reference to prior Application No. PCT/IB03/50020 must be inserted as the first sentence of the specification. Applicant respectfully disagree and submit that the present application claims priority under 35 U.S.C. §119(a)-(d), which is properly claimed in the Declaration, and has been acknowledged on the Notice of Acceptance of Application Under 35 U.S.C. §371 and 37 CFR §1.495 mailed on November 6, 2003. As the claim of priority is, not under 35 U.S.C. §119(e) or 35 U.S.C. §120, it is believed that there is no need for a specific reference in the first sentence of the specification.

this has been properly acknowledged in the last office action (emphasis added):

1. Acknowledgment is made of applicant's claim for foreign priority filed in European Patent Office on 12/09/2002 under 35 U.S.C. 119(a)-(d).

12. Applicant, however, later contend (emphasis added):

Further, the Patent Application Publication (PAP) of the present application, namely, PAP No. 2005/0260310 A1 correctly refers (on the cover page) to the International Application No. PCT/IB03/50020, and thus there is no need to include in the specification a reference to this International Application No. PCT/IB03/50020. Accordingly, withdrawal of the objection to the specification is respectfully requested.

Examiner respectfully refers to MPEP, as recited in the last office action (emphasis added):

2. It is noted that this application appears to claim subject matter disclosed in prior Application No. PCT/IB03/50020, filed 11/06/2003. A reference to the prior application must be inserted as the first sentence(s) of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e), 120, 121, or 365(c). See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, 121, or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii).

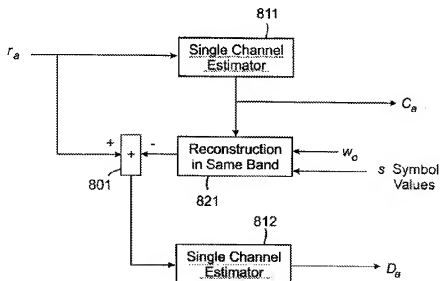
13. Regarding Claims 1-9 Applicant correctly declares (emphasis added):

Chennakeshu shows in FIG 8 two pairs of channel estimators 811, 812, or 813, 814. As clearly shown in FIG 6, channel estimator 811 is connected to channel estimator 812 through a summer 801. Similarly, channel estimator 813 is connected to channel estimator 814 through another summer 802.

14. However, Applicant later contends (emphasis added):

Two estimators that are directly coupled to each other are nowhere disclosed or suggested in Chennakeshu and Paulraj, alone or in combination. Accordingly, it is respectfully submitted that independent claims 1 and 8 are allowable.

this is contradictory to the Applicant earlier statements. As disclosed in the last office action in rejection of claim 1, Chennakeshu et al. disclose the channel parameter estimating means in one branch (Fig. 8: 811) are coupled (811 is coupled to 812 through 821 and 801 as shown in Fig. 8) to the channel parameter estimating means in an other branch (Fig. 8: 812), as declared by the Applicant above. (emphasis added):





Furthermore, Paulraj et al. disclose the channel parameter estimating means in one branch ("channel 1" in Fig. 11) are coupled to the channel parameter estimating means in an other branch ("channel n" in Fig. 11) (emphasis added):

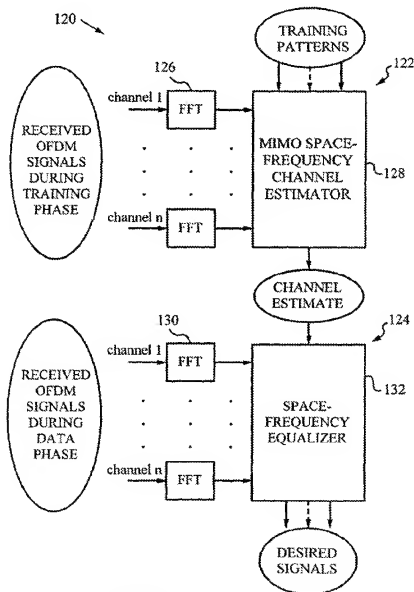


FIG. 11

15. Therefore claims 1 and 8 stand rejected.

16. Examiner notes that the Applicant does not address rejected limitation of the dependent claims. Therefore, claims 2-7 stand rejected.

***Priority***

17. It is noted that this application appears to claim subject matter disclosed in prior Application No. PCT/IB03/50020, filed 11/06/2003. A reference to the prior application must be inserted as the first sentence(s) of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e), 120, 121, or 365(c). See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, 121, or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen

months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not required. Applicant is still required to submit the reference

in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

### ***Drawings***

18. The drawings are objected to under 37 CFR 1.83(a) because Figure 2 fails to show textual details of diagrams shown as described in the specification. An example of proper textual description is found in Figure 1, for example elements 2 and 10 are labeled with numerical references and the textual description "RF". Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required

corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

19. The disclosure is objected to because of the following informalities: heading, as described in the "Content of Specification" below, are missing. Appropriate correction is required.

#### **Content of Specification**

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).
- (e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

- (f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
- (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
  - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (l) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

### **Claim Rejections - 35 USC § 112, first paragraph**

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

20. Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The added material which is not supported by

the original disclosure is as follows: "directly coupled" in line 4 of claim 1 and "directly exchanging" in line 7 of claim 8. Claims 2-7, 9 and 10 are rejected due to their dependency to rejected claims 1 and 8, respectively.

21. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the preamble of claim, using transitional phrase to define the scope of the claim (See MPEP 2111.03 [R-3]. Claims 2-7 are also rejected due to their dependency to rejected claim 1.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

22. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by  
Chennakeshu et al. (US 6,137,843 A).

**Regarding claim 1**, Chennakeshu et al. disclose diversity receiver having multiple antenna receiving branches (col. 13: lines 40-59), wherein each branch (branches



between  $r_a$  with  $C_a$  and  $D_a$  in Fig. 8) has estimating means for estimating (Fig. 8: 811) at least a receiving channel parameter (Fig. 8: 811; Fig. 8:  $C_a$ ), and wherein first parameter estimating means in one branch (Fig. 8: 811) is directly coupled (811 is coupled to 812 through 821 and 801 as shown in Fig. 8) to second estimating means in an other branch (Fig. 8: 812) for using at least a part of the channel parameter estimate in the one branch ( $C_a$  through 821 and 801 is input to 812 in Fig. 8) as an aid for estimating at least a receiving channel parameter (Fig. 8:  $D_a$ ) in the other branch.

**Regarding claim 2,** Chennakeshu et al. disclose as stated in the rejection of claim 1 above. Chennakeshu et al. also disclose that the channel parameter estimate in the one branch (Fig. 8:  $C_a$ ) is used as a starting point for the channel parameter estimate in the other branch ( $C_a$  is input of 821 which is in combination with 801 and 812 generates  $D_a$ ).

**Regarding claim 3,** Chennakeshu et al. disclose as stated in the rejection of claim 1 above. Chennakeshu et al. also disclose that the channel parameter estimate in the one branch provides a coarse channel parameter estimate (Fig. 8:  $C_a$ ), and wherein said coarse channel parameter estimate is used as a start for the channel parameter estimate in the other branch ( $C_a$  is input of 821 which is in combination with 801 and 812 generates  $D_a$ ).

**Regarding claim 4,** Chennakeshu et al. disclose as stated in the rejection of claim 1 above. Chennakeshu et al. also disclose that the second estimating means in the other

branch (Fig. 8: 812) is directly coupled to the first estimating means in said one branch (812 is coupled to 811 through 821 and 801 as shown in Fig. 8) for using at least a part of the channel parameter estimate in the other branch as an aid for estimating the receiving parameter channel in said one branch ( $C_a$  is input of 821 which is in combination with 801 and 812 generates  $D_a$ ).

**Regarding claim 5,** Chennakeshu et al. disclose as stated in the rejection of claim 1 above. Chennakeshu et al. also disclose that the diversity receiver has two antenna receiving branches (col. 13: lines 40-59).

**Regarding claim 6,** Chennakeshu et al. disclose as stated in the rejection of claim 1 above. Chennakeshu et al. also disclose that the diversity receiver is arranged for estimating a time delay between the appearance of a certain channel parameter estimate in the various branches (time delay which inherently exist between appearance of  $C_a$  and  $D_a$  of Fig. 8, because  $C_a$  has to be calculated first).

**Regarding claim 7,** Chennakeshu et al. disclose as stated in the rejection of claim 1 above. Chennakeshu et al. also disclose a mobile radio communication device (col. 1: lines 19-32) provided with the diversity receiver.

**Regarding claim 8,** Chennakeshu et al. disclose method for receiving a signal (Fig. 8) comprising the acts of receiving the signal is received through multiple antenna

receiving branches (Fig. 8:  $r_a$ ), in each branch (branches between  $r_a$  with  $C_a$  and  $D_a$  in Fig. 8) estimating parameters about a received channel to form channel estimation results (Fig. 8: 811 and 812), directly exchanging the channel estimation results between a first branch and a second branch (Fig. 8:  $C_a$ ) using first channel estimation results about a first received channel from the first branch as an aid ( $C_a$  through 821 and 801 is input to 812 in Fig. 8) for estimating the parameters about a second received channel in the second branch and forming second channel estimation (Fig. 8:  $D_a$ ).

**Regarding claim 9,** Chennakeshu et al. disclose as stated in the rejection of claim 8 above. Chennakeshu et al. also disclose that a signal is received (Fig. 8:  $r_a$ ) through multiple antenna receiving branches (col. 13: lines 40-59), wherein in each branch an estimation is made about a received channel, and wherein channel estimation results from one branch are being used as an aid for estimating the received channel in an other branch ( $C_a$  is input of 821 which is in combination with 801 and 812 generates  $D_a$ ).

**Regarding claim 10,** Chennakeshu et al. disclose as stated in the rejection of claim 8 above. Chennakeshu et al. also disclose estimating a delay value between a first channel parameter in the first branch and the first channel parameter in the second branch; and synchronizing estimation in the branches by using the delay value ((time delay which inherently exist between appearance of  $C_a$  and  $D_a$  of Fig. 8, because  $C_a$  has to be calculated first, which therefore would be synchronized)

23. Claims 1 and 8 are also rejected under 35 U.S.C. 102(e) as being anticipated by Paulraj et al. (US 7,058,146).

**Regarding claim 1**, Paulraj et al. et al. disclose diversity receiver having multiple antenna receiving branches (col. 8: lines 59-64), wherein each branch (Fig. 9: 82A ... 82X) has estimating means for estimating (128, "CHANNEL ESTIMATE", and 132 in combination with FFT of Fig. 11) at least a receiving channel parameter ("DESIRED SIGNAL" in Fig. 11), and wherein first parameter estimating means in one branch ("channel 1" in Fig. 11) is directly coupled to second estimating means in an other branch ("channel n" in Fig. 11) for using at least a part of the channel parameter estimate in the one branch ("FFT" 126 of "channel 1") as an aid for estimating at least a receiving channel parameter in the other branch ("FFT" 130 of "channel n").

**Regarding claim 8**, Paulraj et al. disclose method for receiving a signal (Fig. 9) comprising the acts of receiving the signal is received through multiple antenna receiving branches (Fig. 9: 82), in each branch (Fig. 9: 82A ... 82X) estimating parameters about a received channel to form channel estimation results, directly exchanging the channel estimation results between a first branch and a second branch (output of "CHANNEL ESTIMATE" due to "channel 1" in Fig. 11 using first channel estimation results about a first received channel from the first branch as an aid ( $C_a$  through 821 and 801 is input to 812 in Fig. 8) for estimating the parameters about a

second received channel in the second branch and forming second channel estimation ("DESIRED SIGNAL" due to "channel n" in Fig. 11).

### ***Conclusion***

24. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

26. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nader Bolourchi whose telephone number is (571) 272-8064. The examiner can normally be reached on M-F 8:30 to 4:30.

28. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David. C. Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

29. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

/David C. Payne/

Supervisory Patent Examiner, Art Unit 2611